

CM THAT WHICH IS CLAIMED IS:

1. The method of synthesizing fluoromethyl-1,1,1,-
3,3,3-hexafluoroisopropyl ether which comprises adding hexa-
fluoroisopropyl alcohol to a mixture comprising a stoichio-
metric excess of formaldehyde and hydrogen fluoride, plus
sufficient sulfuric acid to sequester most of the water pro-
duced by the reaction, said mixture being maintained at a
temperature of at least 57°C. to cause vapor formation by
boiling of the fluoromethylhexafluoroisopropyl ether formed;
and collecting and condensing said vapor.

2. The method of claim 1 including the step of
thereafter purifying fluoromethylhexafluoroisopropyl ether
from said condensed vapor.

3. The method of claim 1 in which said formalde-
hyde is paraformaldehyde.

4. The method of claim 1 in which said mixture is
maintained at a temperature of 60° to 70°C.

5. The method of ~~C~~claim 1 in which said hexafluoroisopropyl alcohol is added on a continuous, gradual basis.

6. The method of ~~C~~claim 1 in which at least a 10 percent molar excess of paraformaldehyde is present, based on the hexafluoroisopropyl alcohol added.

7. The method of ~~C~~claim 6 in which at least a 400 percent molar excess of hydrogen fluoride is present, based on the hexafluoroisopropyl alcohol added.

8. The method of ~~C~~claim 7 in which a greater weight of generally anhydrous (at least 95 percent) sulfuric acid is present when compared with the weight of the paraformaldehyde present.

9. The method of ~~C~~claim 1 in which from 10 to 100 molar percent excess of paraformaldehyde and 400 to 1000 molar percent excess of hydrogen fluoride is present.

10. The method of claim 9 in which a 50 to 200 percent greater weight of generally anhydrous (at least 95 percent) sulfuric acid is present, compared with the weight of the paraformaldehyde present.

11. The method of synthesizing fluoromethyl-1,1,-1,3,3,3-hexafluoroisopropyl ether which comprises adding 1,1,1,3,3,3-hexafluoroisopropyl alcohol to a mixture comprising a stoichiometric excess of paraformaldehyde and hydrogen fluoride, plus sufficient sulfuric acid to sequester most of the water produced by the reaction, said mixture being maintained at a temperature of 60 to 70 degrees to cause vapor formation by boiling of the fluoromethyl-1,1,1,3,3,3-hexafluoroisopropyl ether formed; collecting and condensing said vapor; and thereafter purifying by distillation said fluoromethyl-1,1,1,3,3,3-hexafluoroisopropyl ether from said condensed vapor, said hexafluoroisopropyl alcohol being added to the mixture on a continuous, gradual basis.

12. The method of claim 11 in which at least a 10 percent molar excess of paraformaldehyde is present, based on the hexafluoroisopropyl alcohol added.

13. The method of claim 12 in which at least a 400 percent molar excess hydrogen fluoride is present, based on the hexafluoroisopropyl alcohol added.

14. The method of claim 13 in which a greater weight of generally anhydrous (at least 95%) sulfuric acid is present, compared with the weight of the paraformaldehyde present.

15. The method of claim 11 in which a 10 to 100 mole percent excess of paraformaldehyde and a 400 to 1000 mole percent excess of hydrogen fluoride is present.

16. The method of claim 15 in which a 50 to 200 percent greater weight of generally anhydrous (at least 95 percent) sulfuric acid is present, compared with the weight of the paraformaldehyde present.

